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ABSTRACT

A system of social indicators for the integrated and systemic study of rural socioeconomic development was constructed. Specific features of the system were that it: (1) embraced nearly all aspects of life activity of the rural population, ranging from work in the public sector to leisure behaviour; (2) included social indicators which measured the life style of rural dwellers, their qualitative characteristics and some of their attitudes as well as the conventional statistics assessing the functions of economic institutions and the distribution of population among social groups; and (3) relied on a systemic conceptual framework of socioeconomic development of rural communities. This paper describes the main stages in the system's development. Some methodological principles of devising systems of social indicators for integrative study of socioeconomic development of rural communities are discussed. Emphasizing the need to use scholars engaged in different rural studies as judges for the selection of necessary indicators, two ways of constructing social indicators--empirical and theoretical--are presented. (NQ)

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AN ATTEMPT AT CONSTRUCTING SOCIAL INDICATORS FOR INTEGRATED STUDY OF RURAL DEVELOPMENT

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AN ATTEMPT AT CONSTRUCTING SOCIAL INDICATORS FOR INTEGRATED STUDY OF RURAL DEVELOPMENT (OPYT KOLLEKTIVNOGO FORMIROVANIA SOTSIALNYKH INDIKATOROV RAZVITIA DEREVNI)

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Abstract

An attempt at constructing a system of indicators for integrated and systemic study of rural socioeconomic development is examined in the paper; emphasized is the need to use scholars engaged in different rural studies as judges for the selection of necessary indicators.

The specific feature of this system of indicators is that it a) embraces nearly all aspects of life activity of rural population ranging from work in public sector to leisure behaviour; b) alongside the conventional statistics assessing the functioning of economic institutions and distribution of population among social groups, it includes social indicators proper allowing to measure life style of rural dwellers, their qualitative characteristics and some of their attitudes; c) relies on systemic conceptual framework of socioeconomic development of rural communities.

The paper describes the main stages in the development of the aforementioned system of social indicators.

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The concern of this paper are some methodological principles of devising systems of social indicators for integrative study of socioeconomic development of rural communities.

The rural sector performs in the contemporary society extremely important functions both economic and social; for this reason the society cannot be indifferent to rates and

directions of its development, and it is an important object of public control. The latter cannot be effective if it is not based on all-round study of the place and role of the countryside in the contemporary socialist society, of probable lines of its development.

All this makes it necessary to study rural prospects in complex rather than separate aspects, be it agriculture, education, medical or cultural services etc. This can be implemented only on the basis of integrated approach to the countryside which presupposes participation of scholars concerned with different rural aspects, not only sociologists, but economists, demographers, lawyers, architects etc. These studies must be of interdisciplinary nature since the most urgent rural problems whose solution will influence what the rural areas will be like in the future cannot be decomposed into separate disciplines.

The existing statistical series in which rural development is ordinarily assessed do not meet the criteria of modern integrative and, particularly, forecasting studies.

First, they reflect by large only economic development. In other words, the statistics concern mainly the functioning of farm enterprises in collective and state farms, in nonproductive sphere, the relations among them and with different urban institutions and enterprises (financing, capital construction, deliveries of farm equipment, fertilizers, materials etc.). As to data about how these enterprises influence the life activity of rural population they are rather scarce. And entirely absent are data about values and preferences of rural population, their attitudes toward different aspects of rural life.

Second, statistics little reflect progressive changes which have already occurred in the countryside. Above all, this concerns social infrastructure, the emergence, for example, of new types of cultural and consumer service facilities (movie-theatres, self-service shops, cafés etc.).

Third, statistics do not touch upon many "qualitative" aspects of contemporary rural life. For example, the deve-

lopment of school network is conventionally assessed in such indicators as actual number of pupils (number of pupils in each form, average number of pupils per form, etc.), as well as demand for teachers, their loading. At the same time such vital "qualitative" aspects of school education as teacher's professional quality, his work attitude cannot be registered within this approach. At the same time it is obvious that just these aspects of educational process begin to play more of a role in the diffusion of knowledge.

The above deficiencies seem to be peculiar not only to rural indicators. It is a characteristic feature of urban statistics as well.

In this context the importance of data sources other than state statistics grows up. We mean the indicators constructed and used by different, mostly sociological, research teams in this country based on data supplementing the state statistics. The major drawbacks of this kind of indicators are lack of standardization, matching and regularity. Special efforts are needed to bring these data to a common system of calculation, to unified statements, to harmony with available statistics.

And the main thing is a necessity to build a system of social indicators since integrative interdisciplinary and, particularly, forecasting study of the countryside is a new area of investigation. All existing indicators are as a rule intended for segmented studies of rural socioeconomic development (agriculture, employment in public sector, rural settlement pattern etc.). Using these indicators for obtaining an all-round picture of the countryside involves work on their reconcilement. In this case the ascertainment of its current state and forecasting its future development may be done in relation to the system as a whole rather than to separate indicators or groups of them. Only then will it be possible to obtain a complete and consistent picture of this complicated socioeconomic process.

From the foregoing it follows that a system of social indicators cannot be constructed incidentally, in the

course of "substantive" studies. This task needs special knowledge, special methodological principles. The development of these principles was a special concern for many studies, they are regularly discussed on pages of Revue internationale des sciences sociales issued by UNESCO, and during international meetings.

The present paper reports on an attempt at collective elaboration of a system of social indicators for forecasting study of the Soviet countryside development and on its tentative results.

We shall begin with some terminological clarifications.

Indicator is an empirical counterpart of some characteristic of the phenomenon studied. If this characteristic is a notion, the attributes operationalizing its content are these indicators (Bestuzhev-Lada, 1974; Land, 1975; Zapf, 1975).

Indicator always presents empirically observable or measurable attributes of an object under consideration and, hence, has quantitative meaning. If the object of investigation is a certain aspect of the life and development of a society, human activity and relations, then indicators in which such objects are measured are termed social (Bestuzhev-Lada, 1974; Land, 1975; Zapf, 1975).

Within interdisciplinary studies we shall distinguish between theoretical, or systemic, and experimental approaches to the formation of a system of indicators. Along with some common principles, they have some methodological peculiarities and different end results.

The peculiarity of "empirical" approach is that selection of disciplines and reconcilement of segmented notions about the studied area proceed upon a) common problems and tasks, b) volume of knowledge about it and c) available research teams concerned with this topic.

"Theoretical" approach implies the observance of systems analysis "regulations" and working out a systemic conceptual framework which coordinates the whole study. In other words, the choice of disciplines and synthesizing segmented notions

of the object studied proceeds upon a systemic framework of an object where indicated are not only the place of each special study and its role in solving the common task, but also the principle and scheme for carrying out special investigations, as well as ways for integration of obtained results.

This delineation was made to show two possible alternatives in the formation of social indicators, differing by methods and final results.

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The construction of a system of social indicators by "empirical" method relying on the consensus of experts' judgement can be exemplified by the work of an interdepartmental commission on coordination of rural socioeconomic studies. It brings together scholars from different areas of rural studies and was organized for comprehensive investigation into the socioeconomic development of the Soviet rural side.

The development of a system of social indicators theoretically, through the operationalization of the systemic framework of rural development, is made within the research project "Prospects of Rural Socioeconomic Development: A Case of Siberia" under the direction of the Corresponding Member of the Soviet Academy of Sciences T.I.Zaslavskaia.

The main objective of the interdepartmental working commission was to define long-range trends in rural development which implied the predictive nature of the study under progress. The members of the commission were confronted with a question what indicators should be used to present rural development, to describe current and future states. As was already noted, state statistics were not enough for this purpose. At the same time each commission member being also head of a research division (department, laboratory or even an institute) had at his disposal many indicators devised in previous studies, repeatedly used and containing infor-

mation on particular rural aspects over a number of years.

The task was to detect "capital" possessed by each commission member and, on the basis of these "individual indicators", to build a set of indicators which would reflect a summarized opinion of all commission participants about what the rural community is at present and will be in the future. The next step was to incorporate this set into an empirical model of the rural side and to unfold with its help possible alternatives of its future. In other words, this set of indicators may be considered a "language" in which a synthesized image of the rural side shared by all commission members was constructed. To elaborate a joint opinion on this issue expertise method was used. Each expert, i.e. commission member, filled out a questionnaire. The results of the previous round were communicated to and evaluated by the participants to attain a consensus of opinion.

The participants filled out 3 questionnaires, each of them corresponding to one stage in the development of social indicators of the rural side.

The first questionnaire had two purposes:

1) to obtain a set of social indicators which, according to the participants, are necessary for the description of the rural side as a whole and of its particular aspects;

2) to identify from this totality those indicators which, in their opinion, should be used in a forecasting study of the countryside.

As a result of the first response set about 400 indicators were obtained describing the following 12 rural spheres: public production sector, educational system, private economy, family and population reproduction, consumption of goods and household activity, spiritual consumption and leisure, collective and individual incomes, labour force resources and employment of population, time budget, settlement pattern and physical-spatial organization of environment, social structure and life style of rural population.

Of these indicators, 150 were marked by experts as neces-

sary for predictive study of the countryside. The obtained indicators were highly diverse by their composition. Above all, we should note that alongside indicators of the type "rural population size" which can be directly expressed through a quantitative measure, there were such as more likely belong to the class of "theoretical notions" since they cannot be expressed directly in numerical form but involve building a chain of indicators consecutively operationalizing each other. For example, "rural settlement pattern" "network of settlements" "density of settlements" (per unit area) and "population size of settlements" (thousands of persons). Obviously, it is possible to build on this totality several chains of this kind. This shows that experts' indicators presented the rural sector on different levels of description and measurement. This made it necessary to arrange them by these levels, i.e. to discern on the one hand certain characteristics meaningful for experts as their image of the countryside and on the other indicators proper operationalizing this image.

For this end, all obtained indicators were arranged as a "tree" with 8 "branches": "social-demographic reproduction of rural population", "sphere of public production and labour", "private economy", "comprehensive and vocational training", "consumption of goods and household condtions", "rural habitation", "labour force resource and employment". Each branch in its turn was presented as hierarchically ordered notions of experts' rural characteristics put into correspondence with an indicator operationizing it.

This procedure has shown that all "elements" of the tree were unnecessary for describing the rural side: each horizontal layer of notions or indicatorsdescribed the countryside exhaustively, though with different degree of detail and accuracy, from the standpoint of the discerned 8 spheres ("tree branches"); the lower the layer, the more detailed was the description. Therefore, the task was to choose such a horizontal layer of notions and indicators operationalizing them which would describe the countryside completely enough

and in sufficient detail. According to our intention, they were to make that major set to rely upon in constructing an empirical model of the countryside and carrying out forecasting calculations. As a result, 82 notions of rural characteristics meaningful for experts were chosen. This set served a basis for ordering a system of forecasting indicators.

It should be noted that not all of these notions-characteristics were operationalized through indicators. For this reason the main purpose of the 2nd round questionnaire was to operationalize all these notions. In view of this, each expert was asked to point out to particular indicators to measure each of 82 characteristics.

As a result of the two rounds a set of social indicators was formed measuring the main rural characteristics registering a synthesized image of the countryside typical of this group of experts.

The principal objective of the 3rd questionnaire was to construct that circle of indicators on which, according to judges, it is possible to conduct an integrated forecasting study of the countryside. It is of importance that such indicators have numerical values characterizing the state of the countryside not only in the past and present, but in the future also. Since the image of the future countryside is least specific and outlined only by those features which determine the development process, it was natural that not all indicators listed in the 2nd questionnaire should prove meaningful for prediction.

According to this, the 3rd questionnaire included indicators for which experts could find probable future values. This list was also supplemented by indicators used by experts in forecasts for individual rural spheres (they were presented to the commission as reports). All in all the circle of forecasting indicators numbered about 250 indicators ordered with regard to 82 rural characteristics.

After filling out the 3rd questionnaire to initial 250 projection indicators 180 more were added.

It is clear that not all of about 500 indicators were of equal value for integrated forecasting. The next task in the construction of a system of indicators was to choose the ones actually needed for this purpose.

But first we should see what set of indicators was obtained after three rounds.

By its composition it included notions from different disciplines where the rural side is studied: economic science, sociology, demography, psychology etc. By number of indicators the main rural characteristics were not in equl position. Some of them had a fairly large number of indicators, e.g., the characteristic "industrial structure of material production" for which about 50 indicators were reported. Others, e.g. "values, attitudes toward family relations" though reported but without a single indicator. On the whole, the most advanced and detailed system of indicators are held by characteristics of public production, material consumption, income, rural habitation, labour resources of the countryside.

This result could have been anticipated: there is an established pattern in our social science to identify just these characteristics when defining rural developmental trends, to hold them basic. Least of all sociopsychological characteristics (values , attitudes) are presented. For all importance attached to them being included into a comprehensive description of the countryside, we have to recognize that at present we do not dispose whatever systematic or representative data in this area. For this reason we shall confine ourselves only to economic and sociological characteristics.

The principal merit of the obtained set of indicators was unique quality and broadness of information about the countryside. This was because commission members were as a rule heads of large research divisions (laboratories, sectors, departments, institutes). Their opinions represented opinions and fundamental studies of national leading research teams. In this sense the characteristics and indicators put forward

by experts as well as their values for a number of years and in the long run were the most up-to-date achievements in social sciences and in rural studies and forecasting. Such information could not have been made available through merely working out the existing literature.

These indicators, however, had many serious deficiencies: dependence on expert panel and rather poor arrangement of themselves and of opinions about their values. This was because in operationalizing main characteristics (Questionnaire No. 2) named were indicators measuring this characteristic with different degree of accuracy and detail. Moreover, the same indicator was often measured by experts on different bases, in different units (absolute, relative), expressed in different terms. This diminished the possibility of using them for summarized forecasting. The judgements about indicator value were sometimes not only different but exactly opposite. In this case the inclusion of such an indicator into summarized forecasting involved the arrangement of its values.

The main thing, however, was that not all of the indicators named by the commission members were similarly important for summarized forecasting as for investigation and forecasting of a separate rural sphere. Therefore, the task was to select indicators which would be most relevant for summarized prediction.

All these deficiencies were not of a kind to be easily removed in the very course of interview rounds. According to this, in group development of social indicators the task of arrangement of the obtained set for the purposes of summarized forecasting will never be escaped. This is a crucial task since only after its solution a set of indicators becomes a system.

One way of doing this is to present them as a system where each is tied with another through the relation of "inference" , or calculation. For this end some initial set of indicators is identified which are absolute by nature of measurement ("rural population size", "gross

farm output" etc.). All other indicators of the set can be derived from these by dividing and/or multiplying. They are called relative. This way of arrangement is of interest because it permits:

a) to use formal methods, e.g. theory of graphs;

b) to present all indicators as a linear combination with each other and thus to cut off all hierarchical ties. Thus if an indicator "gross grain yield" entered the system, such indicators as "gross wheat crop" or "gross barley crop" etc. can be excluded;

c) to reconcile all numerical values of indicators;

d) to find out what indicators are missing in the initial set for the construction of this system.

In general, it can be said that expert method is rather effective in constructing indicators for integrative and forecasting study of such a complicated domain as the countryside. But it needs further development of techniques for expert interview and, mainly, for arrangement of obtained indicators.

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From this standpoint, of interest is another attempt at the development of a system of social indicators within the Siberian research project where systemic approach is implemented for study and forecasting of the countryside.

One of the ultimate goals of this project, alongside a systemic description of the rural side, is finding out its developmental trends. Therefore, it is the same task with the exception that the commission based the development of social indicators on experts' consensus, and the project participants on general theoretical framework. It determines, firstly, what rural aspects will be considered (identification of subsystems), in what general key each of them will be described, what subsystems will be studied on the first stages of the study and what later on, relying on the obtained results. Since the description is always made in certain notions and indicators, the theoretical

scheme of the countryside predetermines also the general structure of the indicators. Some of them are shown on a scheme (Fig. 1).

In the progress of the study each cell in this table is filled out by notions and indicators. Thus, on the cross-section of the lines "characteristics and indicators of the 1st, 2nd .....n-th level" and the column "the function of an enterprise (institution) of public production" such notions and indicators as "industrial structure of public production in the rural community" (the 1st level), "agriculture", "manufacturing", "construction", "transportation and communications" (the 2nd level); "output" (the 1st level), "livestock yield", "plant-growing yield" (the 2nd level) etc. will take place. In the ideal all filled cells of the Table are a set of social indicators used in a systemic study of the countryside.

This set is divided into two groups. The first one corresponds to analytical stage of study and describes different facets, or characteristics, of the five identified subsystems: public production, private economy, material consumption and household activity of rural population, learning and education of young generation, leisure of rural people, and of 3 main kinds of ties by resources which are: rural population and labour force, stock of time, physical resources (including those in money terms) (Zaslavskaia and Ryvkina, eds., 1975).

The indicators of each subsystem must, firstly, reflect different aspects in the functioning of organizations responsible for subsystem activity (e.g. composition and provision of manpower, material-technical base etc.); secondly, the very activity of population within this subsystem (e.g. attendance of cultural facilities, learning at school, vocational technical schools, junior colleges etc.). In case some group of indicators or other is lacking the systemic principle in description will be violated because the countryside will be not so comprehensive as was intended in the theoretical framework of the Project (Zaslavskaia,

1975). And, which is most important, there will be no "junction" between individual parts.

Indicators corresponding to the analytical stage of study where the object under investigation is divided into its components, presents various properties of the identified subsystems, i.e. are of an attributive nature. For example, the subsystem "material consumption" is described through the characteristics "consumption of manufacturing goods", "consumption of food products" , "leisure consumption" which are operationalized, in their turn, through indicators of the type "average per capita consumption of meat and meat products, kg a year", "average per capita consumption of textile, sq. m", "cost of services consumed by rural population (yearly per resident)".

The indicators of the 2nd stage of study on which knowledge obtained on analytical stage is synthesized are of typological nature, i.e. present certain types of activity or types of integration of social institutes. Thus, the subsystem "life style of rural population" presented in the Project as a synthesis of activities in different spheres ranging from family behaviour to work in public production sphere must be described by indicators representing certain types of life style. And it is characteristic that each activity as such is described in attributive characteristics but if it is considered a component of life style, it is presented as a rule in typological characteristics. E.g. the activity of rural dwellers in leisure domain can be described through such indicators as "attendance of clubs", "participation in amateur clubs", "book rading" and the like. But as an element of life style leisure is described in typological indicators, e.g. , "traditional leisure" or "urbanized leisure" (Tapilina, 1976). These typological characteristics, however, are unfolded through attributive indicators, appropriate to those activities which underlie a particular type.

The given Table does not present the entire structure of indicators relevant to systemic framework of the country-

side. It only shows more vividly that in systemic approach the development of social indicators is embedded into the development of theoretical framework. In other words, the latter pre-sets in advance the structure of indicators; what they are to be and what rural aspects they should represent; and, conversely, by the structure of indicators one can judge about the completeness of the theoretical framework.

Such ordered set of notions cannot be obtained by expert method.

The selection of a subset of indicators on which a summarized harmonized predictive description of the countryside can be based was done here in a somewhat different way. Commission members predicted the value of each indicator of a particular rural sphere in isolation from all other indicators of the set since they did not know what indicators were used in forecasting other rural branches . For example, those concerned with long-range projection of educational level of rural population, might be unaware of the number of jobs to be available in rural public production sector by that time or of their demands on comprehensive and special training of workers.

Moreover, in this approach possible are divergences in the values of indicators not only from different rural spheres, but within the same sphere as well. Thus, the projected need in tractors is often not matched with projected need in trailers.

In systemic approach all this work is organized in a different way. The Project participants knew beforehand not only what rural sectors would be presented in forecasting description (rural subsystems), but by what parameters their values would be matched (for example, through distribution of resources: labour force, working and free time etc, in other words, through making balances).

Therefore, if Project participants are seen as experts, the form of interview is quite different.

While in case of commission the arrangement of the set

of indicators obtained from experts into a system was considered an independent task, in case of Project it was part of interviewing procedure. It constitutes the main objective of interview and the procedures are subject to it. Each Project participant responsible for a rural subsystem (public production, rural population reproduction, education, level of consumption of goods etc.) must name indicators in which he forecasts rural development. These indicators were termed "output" ones. In their turn, they are part of a larger set of indicators used by a researcher for describing the current state of a particular rural subsystem. But the main point was that, apart from "output" indicators, all participants of the interview responsible for segmented projections of particular subsystems were asked to name indicators from any other subsystem which were needed to obtain the values of their own projection indicators ("input" ones).

According to this, from each participant a set of indicators arranged as "input-output" was obtained. Some output indicators of one subsystem proved to be input ones for another. Thus, "educational level of rural population", an output indicator of the educational subsystem was the input one for forecasting production and leisure spheres in the countryside.

All input and output indicators are a minimal subset of those indicators which must underlie a truly summarizing rural forecast common to all subsystems. Unlike the indicators obtained through interview of experts commission members, this set of indicators fully relies on the theoretical framework of the countryside representing the latter as an integral system with a complicated inner structure of its own.

Therefore, the "substantive" composition of notions indicating what rural aspects are presented and the degree to which they are filled with indicators is actually independent of the expert panel but is determined by what rural subsystems are identified in the theoretical framework.

Apart from this, the thus procured indicators are better ordered from the viewpoint of a single level of description: no lack of harmony when certain rural characteristics are represented by indicators operationalizing them in great detail and others being nonoperationalized at all. For example, for the characteristic "intensity level of agriculture" 14 indicators were named, and among them ones too much detailed for the summarized projection, e.g. "egg yield per laying hen", " cropping power of sunflower" but for such crucial characteristic of the countryside determining its future state as e.g. "mechanism of its economic ties with city" there is not a single indicator operationalizing it.

In contrast to this , the indicators obtained from the Project participants left not a single characteristic without operationalization. Besides that, finding out input-output ties among indicators implicitly presupposes their linear arrangement in the very course of interview because input indicators are in large part present in calculating the values of the output ones. In other words, this is an analogue to that connection between indicators which was at the core of ordering the "expert" set obtained from commission members.

The discussed method, however, cannot yield a fully ordered set of indicators for which special efforts are needed. The trouble is that there are situations where some indicators being output for one system cannot be used as input for another because they are stated unsuitably or in a different system of calculating their numerical values. But a distinctive feature of this method is that some part of arrangement is done during the very interview by iterative rounds of opinion feedback derived from earlier response sets.

It is of interest to compare the set of all input and output indicators and ones obtained after the processing of the 3rd expert questionnaire. The extent of cross-section of the two sets attests to closeness between "empirical" and "theoretical" ways in the construction of social indica-

tors, the latter being rather rigidly governed by the systemic framework of the object forecast.

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To conclude, we have presented two ways of constructing social indicators - empirical and theoretical. Each has merits and demerits of its own.

The commission method is suitable because it makes possible to obtain a system of social indicators in a relatively short time since the most laborious stage in working out a conceptual framework has been reduced here down to expert consensus on the list of rural characteristics. Then, as expert panel may include practically all necessary specialists (and indirectly, through heads, the whole research teams), it is possible to achieve the necessary broadness and interdisciplinarity in the description of the rural side. The main deficiency of this method is a fairly high degree of disorder in the obtained set of indicators.

The approach based on the theoretical framework of the countryside permits us to derive a more consistent system of indicators. This way, however, is also the most laborious as it involves the development of a systemic framework which is very difficult methodologically and organizationally and requires a highly qualified permanent research team (Land, 1975). For this reason it seems to be only at its beginning now.

The distinction between these two ways is, of course, conventional. In a certain sense, they are complementary because either implies joint coordinated efforts of many scholars from different fields of rural studies.

According to this, the common task is to work out principles for joint collaborative work on the development of a system of indicators for a forecasting study of the countryside, including methods of expert panels and arrangement of the obtained set of indicators.

The structure of rural indicators (general scheme)

analytical stage	rural subsystems and ties / desctiption levels	public institutional sphere	public production activity of population	Internal ties I	Internal ties II	Internal ties III	Internal ties IV	Internal ties V	External ties I	External ties II	External ties III	External ties IV	External ties V
rural subsystems	characteristics and indicators of the 1st level	indicators: functions of enterprises (institutions); results of functioning; means of functioning; ways; the employed; content of activity	indicators: place of activity; duration of activity; attitude of population; conditions and organization of activity	×									
	characteristics and indicators of the 2nd level												
	characteristics and indicators of the n-th level												
synthetic stage	the property of the resource	×		indicators: distribution of population and labour resources	distribution of time stock	distribution of value	distribution of physical resources	distribution of labour resources	distribution of time stock	distribution of value	distribution of physical resources		
ties of the countryside	proportions of resource allocation												
	resource need-to-provision ratio												
multidimensional subsystems	rural population life style	indicators		×									
	system of social rural institutions	indicators											
	social structure	indicators											

* main rural subsystems

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